

2009N Surface Characterization

Location: Along the 2009 North Site transect line, ~200m long
UTM Zone 4 North
From 7920510.74 N 588422.82 E (“0 m end”)
To 7920471.23 N 588226.83 E (“200 m end”)

Collection: Tape measure is laid out along the 200 m transect line at the site, and surface conditions are visually characterized along the line with 0.1 m resolution.

Data Format:

Data files are comma separated text with a single header line naming the columns. Filename indicates the observation date. Column 1 is the start location of the feature. Column 2 is the end location of the feature. Column 3 is the abbreviation for feature type. Distances along the transect are measured from East to West, with 0 m at the East end and 200 m at the west end. Feature types are classified as:

RN “Broken Ice” – loose pieces of ice rubble not covered by snow.

SN “Snow” – Describes accumulated precipitation, should not include the surface scattering layer of deteriorating ice crystals which forms after snowmelt is complete, though differentiating the two is sometimes difficult.

BI “Bare Ice” – Ice which no longer has snow covering, but has a surface above pooling meltwater. Qualifiers differentiate into two categories if additional information was noted:

DBI “Drained Bare Ice” – Ice which no longer has snow covering, but has a surface above any ponding meltwater and a developed surface scattering layer of loose decaying ice crystals.

SBI “Slushy Bare Ice” – In general terms, ice which has predominantly wetted surface crystals, despite the fact that they protrude above the nominal water surface, due to water cohesion and capillary action. Specifically, any water saturated surface that has snow or ice crystals protruding above the surface of the water (in significant coverage... > 20%) but lacks sufficient topographic relief to drain a white surface scattering layer on at least 50% of the area.

MP “Melt Pond” – Ice which is fully covered by a layer of liquid water, but does not include any information about the underlying ice. Qualifiers are added if additional information was obtained:

MPSI – “Melt pond Superimposed Ice” indicates a melt pond which is visually determined to be lined with superimposed ice formed from refrozen snowmelt. This determination is based on bubble fraction and separability of a surface ice layer.

MPOI – “Melt Pond Ocean Ice” – indicates a melt pond lined which is visually determined to be lined with sea ice formed by solidification of ocean water.

OW “Open Water” – no ice present, typically a melt pond that melted through entirely.

Examples of the surface types:



RI – Note small protruding ridge on left of image.



SN – Snow Covered



DBI – Thick Surface Scattering Layer



SBI – A patch of SBI emerging from a pond



MPSI – Note bubbly lining



MPOI – Note difference from MPSI inside red line at bottom of image